



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/236,350	01/25/1999	ISAMU UENO	35.C13282	1615
5514	7590	03/23/2006	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			MISLEH, JUSTIN P	
		ART UNIT	PAPER NUMBER	
			2622	

DATE MAILED: 03/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/236,350	UENO ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Justin P. Misleh	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 04 January 2006.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1,40 and 41 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1,40 and 41 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1.) Certified copies of the priority documents have been received.  
 2.) Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3.) Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____.                                   |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 4, 2006 has been entered.

### ***Response to Arguments***

2. Applicant's arguments filed January 4, 2006 have been fully considered but they are not persuasive.

3. Applicant argues, "The present invention, as now set forth in amended Claim 1, is characterized as deriving two difference signals per unit of an array of a 2x2 arrangement of filters of four different colors aligned with corresponding pixels, wherein the sum of the signals from one row are subtracted from the sum of signals from the other row, and the sum of signals from one column are subtracted from the sum of signals from the other column ... By these arithmetic operations a high-resolution color difference signal is attained ... Applicants' respectfully submit that the cited references do not disclose these arithmetic operations as now set forth in Amended Claim 1."

4. The Examiner respectfully disagrees with Applicant's position; the cited reference indeed disclose the arithmetic operations as now set forth in Amended Claim 1.

Art Unit: 2612

5. Claim 1 now requires the following pixel arrangement:

A B

C D

6. Claim 1 now requires the following derived difference signals:

[1]  $(A + B) - (C + D)$

[2]  $(A + C) - (B + D)$

7. Ukita discloses, as shown in figure 8, the following pixel arrangement:

$D(0,0) - Mg$   $D(1,0) - G$

$D(0,1) - Ye$   $D(1,1) - Cy$

8. Ukita discloses, as recited in equation 31 (column 16, lines 39 – 49) and equation 28

(column 15, lines 45 – 55), respectively, the following derived difference signals:

[1]  $[D(0,0) + D(1,0)] - [D(0,1) + D(1,1)] = (Mg + G) - (Ye + Cy)$

[2]  $[D(0,0) + D(0,1)] - [D(1,0) + D(1,1)] = (Mg + Ye) - (G + Cy)$

### *Claim Rejections - 35 USC § 102*

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. **Claims 1, 41, and 42** are rejected under 35 U.S.C. 102(e) as being anticipated by Ukita.

11. For **Claim 1**, Ukita discloses, as shown in figures 1, 4, and 5, an image pickup apparatus comprising:

a plurality of pixels (see figure 8);

a color filter array (see figure 8) of four colors A, B, C, and D aligned correspondingly to said plurality of pixels,

wherein said color filter array is arranged in two rows x two columns, such that A and B are adjacent in a row direction, C and D are adjacent in a row direction, A and C are adjacent in a column direction, and B and D are adjacent in a column direction (see explanation below); and

an operation circuit (100/200 – see figures 1, 4, and 5) which derives a first color difference signal by an arithmetic operation of (an output of a pixel corresponding to filter A plus an output of a pixel corresponding to filter B) minus (an output of a pixel corresponding to filter C plus an output of a pixel corresponding to filter D), and which derives a second color difference signal by an arithmetic operation of (output A plus output C) minus (output B plus output D) (see explanation below).

12. Claim 1 now requires the following pixel arrangement:

A B

C D

13. Claim 1 now requires the following derived difference signals:

[1]  $(A + B) - (C + D)$

[2]  $(A + C) - (B + D)$

14. Ukita discloses, as shown in figure 8, the following pixel arrangement:

D(0,0) – Mg D(1,0) – G

D(0,1) – Ye D(1,1) – Cy

15. Ukita discloses, as recited in equation 31 (column 16, lines 39 – 49) and equation 28 (column 15, lines 45 – 55), respectively, the following derived difference signals:

$$[1] [D(0,0) + D(1,0)] - [D(0,1) + D(1,1)] = (Mg + G) - (Ye + Cy)$$

$$[2] [D(0,0) + D(0,1)] - [D(1,0) + D(1,1)] = (Mg + Ye) - (G + Cy)$$

16. As for **Claim 40**, Ukita discloses, wherein the operation circuit (100/200 – see figures 1, 4, and 5) derives a luminance signal by an arithmetic operation of output A plus output B plus output C plus output D (see equation 30, column 16, lines 30 – 37).

17. As for **Claim 41**, Ukita discloses, as shown in figure 8, wherein the four colors of the filters are cyan, magenta, green, and yellow.

### *Conclusion*

18. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Justin P Misleh whose telephone number is 571.272.7313. The Examiner can normally be reached on Monday through Friday from 8:00 AM to 5:00 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, David L Ometz can be reached on 571.272.7593. The fax phone number for the organization where this application or proceeding is assigned is 571.273.3000.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JPM  
March 17, 2006



DAVID OMETZ  
SUPERVISORY PATENT EXAMINER